

ABSTRACT

A semiconductor device according to the invention for emitting light when a voltage is applied includes a first (3), a second (5) and a third active semiconductor region (7A-7C). While the conductivity of the first semiconductor region (3) is based on charge carriers of a first conductivity type, the conductivity of the second semiconductor region (5) is based on charge carriers of a second conductivity type, which have a charge opposite to the charge carriers of the first conductivity type. The active semiconductor region (5 13) is arranged between the first and the second semiconductor regions (3, 5). Embedded in the active semiconductor region (5) are quantum structures (13) which are made from a semiconductor material which has a direct band gap. In that respect the term quantum structures is used to denote structures which in at least one direction of extent are of a dimension which is so small that the properties of the structure are substantially also determined by quantum-mechanical processes.